

March 28, 2013

BY ELECTRONIC DELIVERY

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street SW
Washington DC 20554

Re: Progeny LMS, LLC
Permitted Written *Ex Parte* Presentation
WT Docket No. 11-49

Dear Ms. Dortch:

On March 22, 2013, representatives of the Wireless Internet Service Providers Association (“WISPA”) met with Commission staff to discuss the joint tests that WISPA conducted with Progeny LMS, LLC (“Progeny”) in order to demonstrate that Progeny’s network does not cause unacceptable levels of interference to Part 15 devices.¹ Since the conclusion of the joint tests, WISPA has repeatedly made the same misrepresentations regarding the joint test results and also about the use by its members of the 902-928 MHz band.

Turning to the latter issue first, WISPA continues to assert that its members operate WISP networks “in all areas; rural, suburban and urban.”² Progeny has never questioned whether some WISPs exist in all areas of the country, but has noted that WISPs operate on a variety of different spectrum bands in different operating environments. The vast preponderance of WISPs focus their operations outside of developed areas and because of the inherently high

¹ See *Letter from Stephen E. Coran, Counsel to the Wireless Internet Service Providers Association*, to Ms. Marlene H. Dortch, Secretary, Federal Communications Commission, Notice of Ex Parte, WT Docket No. 11-49 (March 22, 2013) (“WISPA Letter”).

² *Id.*, Attachment at 8.

noise floor in the 902-928 MHz band in urban markets, WISP usage of the 902-928 MHz band is largely restricted to very rural areas of the country well outside the more densely populated communities where Progeny intends to operate its indoor position location network. This conclusion is reinforced by a review of the letters that were filed in this docket by WISP operators, all 36 of which clearly indicated that they use WISP equipment in the 902-928 MHz band only in very rural areas and only when preferred spectrum bands are unavailable.³

Nevertheless, to address any potential concern within the WISP industry, Progeny has repeatedly indicated to the Commission that, in the highly unlikely event that Progeny constructs multilateration location and monitoring service (“M-LMS”) networks in very remote areas of the country, Progeny will work with WISPs in these rural areas to ensure that unacceptable levels of interference do not impair their services to customers. WISPA does not appear to address Progeny’s offer in its *ex parte* presentation. In fact, it does not appear that any operator of a WISP network that uses the 902-928 MHz band was present at the *ex parte* meeting.⁴ Progeny nevertheless remains certain that, working closely with operators of WISP networks in very rural areas, spectrum sharing arrangements can be established and maintained that will not inhibit the provision of wireless broadband services to the customers of WISP networks.

As WISPA acknowledges in its presentation, 900 MHz WISP equipment is channelized to operate across the entire 902-928 MHz band, which means that at least half of their available operating channels are below those used by Progeny for its position location network. WISPA, however, has repeatedly argued that Progeny’s network will make as much as two thirds of the 902-928 MHz band unavailable for WISP networks.⁵ WISPA has tried to justify this claim using its own version of the following chart (which Progeny has corrected to depict the spectrum sub-

³ See e.g. *Joink Comments* at 1 (explaining that they have “improved our fixed wireless network to reduce the number of customers we service using 900 MHz spectrum, however, there are still 350 customers who [due to the low population density, terrain and trees] cannot be serviced reliably from another spectrum.”); *NetsurfUSA Comments* at 1 (“We always try to serve client by 2.4 [GHz] and only provide 900 MHz if there is no other way to provide broadband.”); Comments of InvisiMax, Inc., WT Docket 11-49, at 1 (filed Dec. 21, 2012) (“Today we only use 900 MHz in two locations.”); Comments of Sky Valley Network, WT Docket 11-49, at 1 (filed Dec. 21, 2012) (explaining that approximately “10% of our customers receive their internet connection via 900 MHz unlicensed equipment”); *Fourway Comments* at 1 (explaining that 900 MHz is a “last resort” for customers with “terrain or obstruction issues”); Comments of Tincans Wireless Internet, WT Docket 11-49, at 1 (filed Dec. 21, 2012) (The difficulty with 900 MHz is it is “often difficult to avoid self-interference and even more difficult to avoid harmful interference from other sources, including other ISP’s, water/electric meters, phones, baby monitors, illuminated signage, the list goes on and on.”).

⁴ See *WISPA Letter* at 1 (noting attendance only of WISPA counsel, Stephen Coran, with WISPA consulting engineer, Jack Unger, on the telephone).

⁵ See *id.*, Attachment at 4.

bands in proper scale).⁶ WISPA's chart depicts the WISP channels that were used in the joint tests (three channels each for of the Cambium and for the Ubiquiti equipment), one channel directly co-frequency with Progeny's network, one channel partially straddling Progeny's network, and one channel adjacent to Progeny's network. As noted in Progeny's corrected version of the chart below, WISPA claims that Progeny's service makes the 912-928 MHz portion of the band "unusable" for WISP networks, leaving them with the 902-912 MHz portion of the band as "usable."⁷

	WISPA Claims "Usable"		WISPA Claims "Unusable"			
Cambium (8 MHz channels)	902	910	916	924		
			919		927	
Ubiquiti (10 MHz channels)	902	912	912	922		
			917		927	
Progeny (2 MHz channels)				920-922		925-927
MHz	902					928

Scaled Version of WISPA Chart on Tested WISP Spectrum Use

What WISPA fails to disclose is that the three channels for each device that are depicted in the chart above constitute only a fraction of the available channels for each WISP device (which explains all the white spaces depicted between the WISP channels in grey). As explained in the Progeny/WISPA joint test report, the Cambium system has 19 available channels, each using an 8 MHz wide carrier with operating frequencies that are selectable in 1 MHz steps from 906 to 924 MHz.⁸ More than half of these channel settings (10 channels from 906 to 915 MHz) do not overlap at all with Progeny's beacon transmissions and, based on the joint test results, will not experience any impact at all from the operation of Progeny's network.

The Ubiquiti system has both multiple channel and multiple bandwidth options.⁹ The bandwidth options range from 3 MHz to 20 MHz and the 10 MHz bandwidth option was employed in the joint tests.¹⁰ In the 10 MHz bandwidth setting, the Ubiquiti system has 4 available channel options (907 MHz, 912 MHz, 917 MHz, and 922 MHz).¹¹ Half of these

⁶ See *id.*

⁷ See *id.*

⁸ See Progeny & WISPA Testing Part 15 Test Report, WT Docket No. 11-49, at 10 (Oct. 31, 2012) ("*Progeny/WISPA Joint Test Report*").

⁹ See *id.* at 12.

¹⁰ See *id.*

¹¹ See *id.*

channels (907 and 912 MHz) do not overlap at all with Progeny's beacon transmissions and, again, based on the joint tests, these channels will not experience any impact at all from the operation of Progeny's network. WISPA's claim that Progeny's service impacts as much as two thirds of the spectrum that is available for 900 MHz WISPs is therefore purely fictitious.

WISPA also completely disregards the fact that one of the tested devices, the Ubiquiti device, performed very well when set to operate directly co-frequency with Progeny's beacon transmissions. The Ubiquiti device functioned with a data throughput reduction of just 2.5 percent in the Access Point to Subscriber direction and 17.6 percent in the Subscriber to Access Point direction.¹² These results demonstrate that WISP networks can operate satisfactorily directly co-frequency with Progeny's service, further undercutting WISPA's claim that its members will be pushed out of the upper portion of the 902-928 MHz band.

WISPA also persists in its *ex parte* presentation in combining reductions in data throughput to include both the inbound and outbound direction, resulting in fictitious "aggregate" percentages of as much as 89.4 percent.¹³ WISPA's approach effectively sums the numerator while failing to sum the denominator, a fairly blatant math error that would then theoretically allow a 200 percent reduction in data throughput (obviously an impossible result). Dividing all WISPA impairment percentages by two essentially returns WISPA to the land of both practical and mathematical reality. In essence, the joint test results showed that when WISP equipment was forced directly co-channel with Progeny, the most challenged channels reflected data throughput reductions in the range of 40 to 50 percent, while the more favorable channels (still co-channel with Progeny) experienced throughput reductions of around 10 to 20 percent. Finally, of course, all of the tests using channels that were not co-frequency with Progeny's service experienced no reductions in throughput at all.

All of this presumes, of course, that WISP networks might operate in the same communities as Progeny's position location network. As discussed above, 900 MHz WISP networks already avoid suburban and urban areas because of the interference that they currently experience from wireless and paging networks in adjacent bands and because of interference from other Part 15 devices within the 902-928 MHz band. For example, WISPA explains in the joint test report that 900 MHz WISP networks are already subject to a self-imposed exclusion zone of "600 meters (2000 feet) from the nearest 800 MHz cellular transmitter, 929-930 MHz paging transmitter or non-participating 900 MHz WISP installation" because of the harmful interference that would result to the WISP device.¹⁴ Such restrictions effectively bar 900 MHz WISP equipment from urban areas in which Progeny intends to operate. Therefore, protracted

¹² See *id.* at 22.

¹³ See *WISPA Letter*, Attachment at 3.

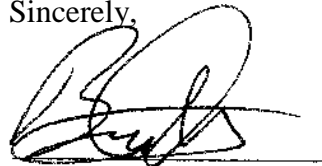
¹⁴ This restriction is reflected in the Progeny & WISPA Joint Test Report. See *Progeny/WISPA Joint Test Report* at 3.

discussion regarding the measures that would be needed to permit co-frequency operations of Progeny's service with 900 MHz WISP networks is arguably academic.

Progeny nevertheless remains committed to working with WISP operators that use the 900 MHz band to ensure that their services to consumers in very rural areas will not be inhibited. As more and more services are provided to consumers using wireless technologies, spectrum sharing between multiple equipment types and services will inevitably continue to increase. This will require both existing spectrum users and the Commission to repeatedly affirm that successful spectrum sharing arrangements can and must be maintained in countless spectrum bands and NIMBY reactions to shared spectrum arrangements must be discouraged in order to maximize the availability of new and innovative wireless services to consumers and the continued growth of the wireless industry as an important contributor to this Nation's economy.

Thank you for your attention to this matter. Please contact the undersigned if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce A. Olcott", written over a horizontal line.

Bruce A. Olcott
Counsel to Progeny LMS, LLC